# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/587,727 | 06/05/2000 | Nandu Gopalakrishnan | 2-11-6 | 7894 |

| 46290     7590     01/07/2005 |
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| EXAMINER |
|---|
| BURD, KEVIN MICHAEL |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2631 | |

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/587,727 | GOPALAKRISHNAN ET AL. |
| | Examiner | Art Unit |
| | Kevin M. Burd | 2631 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>07 September 2004</u>.

2a)☒ This action is **FINAL**.    2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>1-48</u> is/are pending in the application.

    4a) Of the above claim(s) <u>18-27 and 39-48</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-17 and 28-38</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>07 September 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All    b)☐ Some *    c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)                    **Office Action Summary**                   Part of Paper No./Mail Date 20050105

1.      This office action, in response to the remarks filed 9/7/2004, is a final office

action.

## *Response to Arguments*

2.      Claims 18-27 and 39-48, though withdrawn from consideration, are still pending

and must be cancelled.

3.      The drawing corrections filed 9/7/2004 are acceptable. New formal drawings

must be submitted.

4.      Applicant's arguments filed 9/7/2004 have been fully considered but they are not

persuasive.

Applicant states the examiner's assertion that it may be desirable in some

instances to transmit a data request signal is not sufficient motivation to establish a

prima facie case that the present invention is obvious over the cited references. The

examiner stated in the previous office action Berger (US 2001/0012271) discloses the

rate request signal allows data to be properly received in a destination. When a rate is

more than a destination can handle, loss of data results at the private destination or the

destination is required to include high-speed buffers to receive the data that arrives too

fast for the destination to route. These problems are overcome by utilizing the rate

request signal of Berger (paragraphs 0009-0011) and this is why it would have been

obvious for one of ordinary skill in the art at the time of the invention to combine the

teachings of Berger in the combination of Meyer (US 5,541,595) and Pollman et al (US 5,233,348).

Applicant states the cited references must include some motivation to combine the Pollman reference with the Meyer reference. As stated in the previous office action, Pollman discloses, "Huffman coding is an optimum statistical coding procedure capable of approaching the theoretical entropy limit, given prior knowledge of the probability of all possible events. The encoder can generate such probability distributions and send them to the decoder prior to transmission of a given frame. This table is used to derive Huffman code words where relatively short code words are assigned to events with the highest probability of occurrences." Therefore, the probability distribution is sent to the decoder prior to the transmission of the messages (frame) and the grouping based on probability is based on the distribution found in this transmission. Pollman is stating fundamental components of Huffman coding and therefore are true in other Huffman coding systems. Pollman simply elaborates on necessary information for Huffman codes, such as the codes present in Meyer, to function properly. In addition, Meyer discloses and claims variable length coding techniques that are not restricted to the transmission of image data (column 1, lines 8-10 and column 12, line 49 to column 13, line 13).

For these reasons and the reasons stated in the previous office action, the rejection of the claims are maintained and stated below.

### *Drawings*

5.      New corrected drawings in compliance with 37 CFR 1.121(d) are required in this

application because the drawing corrections filed 9/7/2004 are approved by the

examiner. Applicant is advised to employ the services of a competent patent

draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer

prepares new drawings. The corrected drawings are required in reply to the Office

action to avoid abandonment of the application. The requirement for corrected drawings

will not be held in abeyance.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.      Claims 1-4, 10-13, 28-31 and 37 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Meyer (US 5,541,595) in view of Pollman (US 5,233,348) further in

view of Berger (US 2001/0012271).

Regarding claims 1, 10, 28 and 37, Meyer discloses a method of encoding

messages (column 1, lines 31-45). The messages are separated into groups as shown

in table 1. Table 1 shows messages (CODES) S1, S2, S3, S4, S5 and S6 and their

associated Huffman code. S1, S2 and S3 are converted into 2 bit messages. This is a

first group. S5 and S6 are converted into 4 bit messages. This is a second group. The number of messages in the first group is unequal to the number of messages in the second group. These messages (Huffman codes) will be transmitted (column 2, lines 11-16).

Meyer does not disclose the second group of messages is based on a prior transmitted message. However, Pollman discloses, "Huffman coding is an optimum statistical coding procedure capable of approaching the theoretical entropy limit, given prior knowledge of the probability of all possible events. The encoder can generate such probability distributions and send them to the decoder prior to transmission of a given frame. This table is used to derive Huffman code words where relatively short code words are assigned to events with the highest probability of occurrences." This is disclosed in column 7 lines 24-38 of Pollman. Therefore, the probability distribution is sent to the decoder prior to the transmission of the messages (frame) and the grouping based on probability is based on the distribution found in this transmission.

Since Pollman discloses fundamental components of Huffman coding, it would have been obvious for one of ordinary skill in the art at the time of the invention to include the teachings of Pollman in the coding system of Meyer. Pollman simply elaborates on necessary information for Huffman codes to function properly.

The combination stated above does not discloses the encoded data is a rate request signal. Berger discloses transmitting a rate request signal is useful to change the present rate of data being transmitted (paragraph 0011). It would have been obvious for one of ordinary skill in the art to include the teachings of Berger into the combination

of Meyer and Pollman. By changing the transmission rate via a rate request signal, the

data is received properly from the destination. Berger states "this rate is more than the

destination can handle and results in either loss of data at the private destination

network or a requirement that the private destination network include high speed buffers

to receive data that arrives too fast for the private destination to route." (paragraph

0009). These deficiencies are overcome by the teachings of Berger (paragraph 0010).

Regarding claims 2, 11 and 29, Meyer discloses a first number of bits (two) are

used to represent messages in the first group, which is different than a second number

of bits (four) used to represent messages in the second group as shown in table 1.

Regarding claims 3, 12 and 30, Meyer discloses a message from the first group

has a higher probability of being transmitted than a message from the second group

since codes having high probabilities of occurrence are converted into Huffman codes

of short bit length as stated in column 2, lines 11-16).

Regarding claims 4, 13 and 31, Meyer discloses the number of bits used to

represent messages in the first group is lower than the number of bits used to represent

messages in the second group since codes having high probabilities of occurrence are

converted into Huffman codes of short bit length as stated in column 2, lines 11-16).


7.      Claims 5-9, 14-17, 32-36 and 38 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Meyer (US 5,541,595) in view of Pollman (US 5,233,348) further in

view of Berger (US 2001/0012271) further in view of Padovani (US 6,411,799).

Regarding claims 5, 14, 32 and 38, Meyer discloses a method of encoding

messages (column 1, lines 31-45). The messages are separated into groups as shown

in table 1. Table 1 shows messages (CODES) S1, S2, S3, S4, S5 and S6 and their

associated Huffman code. S1, S2 and S3 are converted into 2 bit messages. This is a

first group. S5 and S6 are converted into 4 bit messages. This is a second group. The

number of messages in the first group is unequal to the number of messages in the

second group. These messages (Huffman codes) will be transmitted (column 2, lines

11-16). The first and second messages are based on the current state of the system so

that the messages have the highest probability of occurring. If these probabilities

changed, so would the coding.

Meyer does not disclose the second group of messages is based on a prior

transmitted message. However, Pollman discloses, "Huffman coding is an optimum

statistical coding procedure capable of approaching the theoretical entropy limit, given

prior knowledge of the probability of all possible events. The encoder can generate such

probability distributions and send them to the decoder prior to transmission of a given

frame. This table is used to derive Huffman code words where relatively short code

words are assigned to events with the highest probability of occurrences." This is

disclosed in column 7 lines 24-38 of Pollman. Therefore, the probability distribution is

sent to the decoder prior to the transmission of the messages (frame) and the grouping

based on probability is based on the distribution found in this transmission.

Since Pollman discloses fundamental components of Huffman coding, it would

have been obvious for one of ordinary skill in the art at the time of the invention to

include the teachings of Pollman in the coding system of Meyer. Pollman simply

elaborates on necessary information for Huffman codes to function properly.

The combination stated above does not discloses the encoded data is a rate

request signal. Berger discloses transmitting a rate request signal is useful to change

the present rate of data being transmitted (paragraph 0011). It would have been obvious

for one of ordinary skill in the art to include the teachings of Berger into the combination

of Meyer and Pollman. By changing the transmission rate via a rate request signal, the

data is received properly from the destination. Berger states "this rate is more than the

destination can handle and results in either loss of data at the private destination

network or a requirement that the private destination network include high speed buffers

to receive data that arrives too fast for the private destination to route." (paragraph

0009). These deficiencies are overcome by the teachings of Berger (paragraph 0010).

The combination above does not disclose the first group is transmitted at a

different power than the second group. However, it is obvious for one of ordinary skill in

the art at the time of the invention to know that any group with fewer bits will be

transmitted at lower power than a message with more bits. This is shown in column 1,

lines 60-65 of Padovani. Padovani states a system increases capacity by transmitting

fewer bits thereby using less power. It requires power to transmit a bit and the fewer

that are transmitted, the less power will be used.

Regarding claims 6, 15 and 33, Meyer discloses a first number of bits (two) are

used to represent messages in the first group, which is different than a second number

of bits (four) used to represent messages in the second group as shown in table 1.

Regarding claims 7, 16 and 34, Meyer discloses a message from the first group has a higher probability of being transmitted than a message from the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

Regarding claims 8, 9, 17, 35 and 36, Meyer discloses the number of bits used to represent messages in the first group is lower than the number of bits used to represent messages in the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

## Conclusion

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Thursday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Burd
1/5/2005

KEVIN BURD
PRIMARY EXAMINER